

CLAIMS

1. A process to isomerize hydrocarbon feedstreams comprising:
 - a) contacting a hydrocarbon feedstream with a aqueous-treated catalyst comprising ferrierite, or a zeolite isostructural to ferrierite, under hydroisomerization conditions including:
 - i) temperatures of about 400 to about 800°F(205°C to about 430°C); and
 - ii) pressures of about 400 to about 2000 psig(2860 to about 13890 kPa);

wherein after the above-described method, said catalyst desorbs sorbed ammonia at a temperature about 248°F(120°C) lower than the same untreated catalyst before the above-described method.
2. The process according to claim 1 wherein said hydrocarbon feedstream is a C₁₀₊ hydrocarbon feedstream boiling in the range of about 345°F to about 1050°F.
3. The process according to claim 1 wherein said hydrocarbon feedstream is a C₉ hydrocarbon feedstream boiling below about 345°F.

-20-

4. The process according to any of the claim 1 wherein said aqueous-treated catalyst further comprises about 0.05 to about 2.0wt.%, based on the catalyst, of at least one Group VIII metal.
5. The process according to Claim 4 wherein said Group VIII metal is a Group VIII noble metal.
6. The process according to Claim wherein said Group VIII metal is Pt.
7. The process according to Claim 6 wherein said aqueous-treated catalyst is subjected to a water treatment comprising submersing said aqueous-treated in catalyst in water for less than about 24 hours at a temperature of about 210°F to about 575°F (100 to about 300°C).
8. The process according to Claim 7 wherein the pH of said water is adjusted to about 2 to about 7 through the addition of an acidic or basic material that does not have a deleterious effect on said aqueous-treated catalyst.

-21-

9. The process according to Claim 8 wherein said basic material is dilute aqueous ammonium hydroxide, and said acidic material is dilute hydrochloric acid.
10. The process according to claim 8 wherein the product selectivity of the hydroisomerization process improves by more than about 20%.
11. The process according to claim 9 wherein the product selectivity of the hydroisomerization process improves by more than about 30%.
12. The process according to claim 10 wherein the product selectivity of the hydroisomerization process improves by more than about 50%.
13. The process according to any of the Claim 6 wherein said aqueous-treated catalyst is treated after the addition of the metals.
14. The process according to Claim 13 wherein said aqueous-treated catalyst further comprises at least one binder or matrix material selected from clays, silica, and alumina.

-22-

15. The process according to Claim 14 wherein said binder or matrix material is alumina present in a ratio of less than about 15 parts zeolite to one part binder.
16. The process according to Claim 9 wherein said water treatment does not result in the dealumination of said ferrierite.
17. A process to isomerize hydrocarbon feedstreams comprising:
- a) contacting a hydrocarbon feedstream with a aqueous-treated catalyst comprising ferrierite, or a zeolite isostructural to ferrierite, and about 0.05 to about 2.0wt.% of at least one Group VIII metal, based on the weight of the catalyst, under hydroisomerization conditions including:
 - i) temperatures of about 400 to about 800°F(205°C to about 430°C); and
 - ii) pressures of about 400 to about 2000 psig(2860 to about 13890 kPa);
- wherein said aqueous-treated catalyst is treated under conditions such that the aqueous-treated catalysts show removal of sorbed ammonia at a

-23-

temperature about 194°F to about 230°F(90 to about 110°C) lower than the same untreated catalyst.

18. The process according to claim 17 wherein said hydrocarbon feedstream is a C₁₀₊ hydrocarbon feedstream boiling in the range of about 345°F to about 1050°F.

19. The process according to claim 17 wherein said hydrocarbon feedstream is a C₉ hydrocarbon feedstream boiling below about 345°F.

20. The process according to Claim 17 wherein said Group VIII metal is a Group VIII noble metal.

21. The process according to Claim 20 wherein said Group VIII metal is Pt.

22. The process according to Claim 21 wherein said aqueous-treated catalyst is subjected to an aqueous treatment comprising submersing said aqueous-treated catalyst in water for less than about 20 hours at a temperature of 284°F to about 500°F(140 to about 260°C).

-24-

23. The process according to Claim 22 wherein the pH of said water is adjusted to about 3 to about 5 through the addition of dilute aqueous ammonium hydroxide or dilute hydrochloric acid.
24. The process according to any of the Claim 23 wherein said aqueous-treated catalyst is treated after the addition of the at least one Group VIII metal.
25. The process according to Claim 21 wherein said aqueous-treated catalyst further comprises at least one binder or matrix material selected from clays, silica, and alumina.
26. The process according to Claim 24 wherein said aqueous treatment does not result in the dealumination of said ferrierite.
27. The process according to claim 26 wherein the product selectivity of the hydroisomerization process improves by more than about 20%.